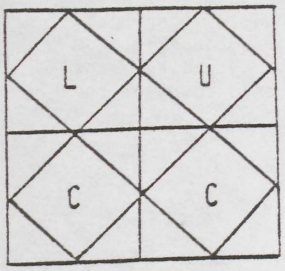
4-25-1979

User Services External Report

Lehigh University



USER SERVICES EXTERNAL REPORT

LEHIGH UNIVERSITY COMPUTING CENTER
CDC 6400 (CM 96KW, ECS 1/8 MW, SCOPE 3.4.4) VARIAN 620/f
DECSYSTEM-2040 (256KW MEMORY, TOPS-20 V3)
PDP 11/34 (96KW MEMORY, RSTS/E V06C)
Vol. VI, No. 3
April 25, 1979

1.0 NEW STAFF MEMBERS

Since the last issue of USER was published, a number of new people have joined the staff of the Lehigh University Computing Center.

User Services acquired two of these new faces. Hazel Edwards joined the Computing Center as the User Services Manager. Hazel recently moved to this area from Cleveland, Ohio where she worked for Booz, Allen and Hamilton as a management consultant specializing in information systems. Her work experience spans eight years in the data processing field, first as a programmer then as a consultant. Hazel's academic background includes a B.S. in Mathematics from Virginia State College and a M.S. in Computer Science from Pratt Institute.

Also joining User Services is Marianne Jacoby. She becomes the third full-time user consultant in the group. She was most recently employed in an administrative position at Lehigh County Community College. Marianne's academic experience includes a B.S. in Elementary Education from Kutztown State College and course work in the data processing curriculum at Northampton County Area Community College.

The Operations group was joined by George Allred who will serve as an electronics technician. George has four years experience in the field. His academic experience includes an Associate Degree in Electronic/Technological Engineering from Brevard Community College in Cocoa, Florida.

Although not a new face, Judy Allio rejoined the User Services group as Data Processing Clerk after a brief stay at home. Judy replaces Kathy Horwath who advanced to the position of Operations Administrative Assistant within the Computing Center. To all the new and returning faces - WELCOME!

2.0 FUTURE COMPUTING FACILITIES STUDY TEAMS

At its January 31 meeting, the Computing Center's Advisory Committee formed two study teams, consisting of faculty and staff members, who were charged with the responsibility of specifying user needs for computing facilities for the next three to five years. Based upon the input from these studies, upgrades of the existing systems will be configured by the Computing Center. Then, if necessary, these "ideal" configurations will be modified to fit within the financial resources available for computing services. The non-Computing Center members of the study teams are:

	DEC 20/PDP 11/34	CDC 6400
College of Arts and Sciences	Dr. Bruce Hargreaves	Dr. Jim Parks
College of Business and Economics	Dr. Frank Luh	Dr. John McNamara
College of Engineering and Physical Sciences	Dr. Emory Zimmers	Dr. Stan Johnson
School of Education	Dr. Leroy Tuscher	Dr. Gary Lutz
Research Centers	Dr. George Driscoll	Dr. Celal Kostem
Libraries	Mrs. Berry Richards	Mrs. Berry Richards
Administrative Services	Mr. Roy Gruver	Mr. Roy Gruver
Users' Subcommittee	Dr. Gerry Rayna	Dr. David Walker

All members of the Lehigh community are requested to contact their study team representatives to assure that there is the broadest possible input of user needs.

3.0 OFF-HOURS PROCESSING

The use of the CDC 6400 during off-hours processing periods continues to increase. In fact, during February 53.0% of the total CP hours of use were accumulated during off-hours periods. In March, the percentage was 53.2%.

With the increasing level of usage, it seems appropriate to remind users of certain constraints which exist on off-hours processing. First, all jobs still executing at 6 AM on Monday through Friday mornings are dropped when the daily preventive maintenance is started by the CDC Customer Engineers. (Jobs still in the input queue remain there until the next off-hours processing period.)

Second, extended off-hours processing, uninterrupted except for system problems and emergency hardware and software maintenance, is scheduled only for Tuesday, Thursday, and Saturday "mornings". Although off-hours processing is scheduled for the entire weekend, it is frequently interrupted for software maintenance on Saturday night.

Third, users should be careful not to compete against themselves (they already must compete against other users for available resources) by submitting a number of jobs all to be processed during the same off-hours period. It is possible, in the worst situation, that all jobs will still be executing when they are dropped at 6 AM. To avoid this situation, users who submit multiple off-hours jobs are urged to utilize, whenever possible, the job dependency feature of the SCOPE operating system to force the complete execution of one job before another job begins its execution. Users are referred to pages 4-54 and 4-55 of the SCOPE 3.4 Reference Manual, available at the Inquiry Desk in the Users' Area at Packard Laboratory. Further assistance may be obtained from a User Services' consultant.

Fourth, users should consider building into their programs a procedure which periodically stores intermediate results of computations. These results then can be used to restart processing if the job is dropped or the system should stop operating for some reason.

Fifth, for large FORTRAN jobs (i.e., those using more than 100 system seconds and/or 100000 (octal) words of central memory), one of the optimizer options of the FTN (version 3 or 4) compiler should be used. For many types of large programs, the increased compilation cost will be more than offset by the sometimes dramatic reduction in execution costs. A note of caution -- optimization algorithms tend to be rather complex, and occasionally in the past with FTN 3, some differences were found between the results produced by optimized and non-optimized programs. The FTN 4 optimizer is significantly better than that of FTN 3; however, it might be prudent to compare the results of several optimized and non-optimized runs. In any case, the use of the RUNT compiler should be avoided at all costs for large jobs (if necessary, use RUN instead).

Sixth, for production jobs (i.e., where the same program repeatedly is used unchanged), the compilation cost can be saved by storing the object (LGO) file as a permanent file, a binary card deck or as a file on a magnetic tape.

Seventh, when submitting multiple jobs that ATTACH the same permanent file, make sure that files are ATTACHed with read access only to prevent jobs from being unnecessarily delayed by waiting for access to a file. The easiest way to ensure read-only access is to specify an XR password when CATALOGing the file (but not in the ATTACH command).

Eighth, if a magnetic tape must be used by an off-hours job, arrange the job so that the tape will be used at the beginning of the job. If necessary, copy the tape to a temporary disk file. Release the tape drive as soon as possible via the RETURN command. Due to the volume of off-hours processing, it is difficult to handle long jobs which write a tape. If feasible, results should be saved on an RP=1 permanent file and copied to tape the next day. Another alternative is to punch the results on cards.

4.0 UPDATE ON HARDWARE AND SITE IMPROVEMENTS

In the past two issues of USER, various hardware enhancements and site improvements were announced. An update report on these plans follows.

*CDC 6400 - The installation of the additional 100000 (octal) words of central memory was accomplished perfectly by the Control Data Customer Engineers. Congratulations for a job well done! The new combined disk system and tape system controller also was installed successfully, but the delivery of the remaining new 9-track and 7-track tape drives has been delayed. Although only two 9-track tape drives are available, users are encouraged to begin converting their 7-track tapes to 9-track as part of their normal production work.

*PDP 11/34 - The modification to speed up the access to memory should be installed within a few weeks.

*Fritz Lab Annex Terminal Cluster - The terminal cluster located in Room A3 of the Fritz Lab Annex has become an official 24 hour site when the University is in session during the Fall and Spring semesters. This cluster contains two dial-up terminals - one video display terminal and one printing terminal.

*Drown Hall Terminal Cluster - Two changes have occurred in the Drown Hall Terminal Cluster recently. The terminal directly connected to the DEC 20, previously located in the Mudd Building Cluster, is now located in the Drown Hall Cluster.

*Whitaker Lab Terminal Cluster - The Whitaker Lab Terminal Cluster has been re-configured to contain three dial-up video display terminals and one video display terminal directly connected to the CDC 6400.

*Christmas-Saucon Terminal Cluster - An additional video display terminal has been placed in Room B9-11 of the Christmas-Saucon Terminal Cluster. This terminal is directly connected to the CDC 6400. It was previously located in the Drown Hall Terminal Cluster.

*On-Campus Dial-up Access - Two telephone lines have been added for on-campus access to the CDC 6400. They can be reached by dialing extension 2313. Also, two lines have been added to the PDP 11/34. They can be utilized by dialing extension 2311.

5.0 EMPLOYMENT OPPORTUNITIES

The Lehigh University Computing Center currently has three vacant positions on its staff. Anyone interested in the positions described below should contact the Personnel Office, Lehigh University, Johnson Hall #36, Bethlehem, PA 18015 (215-691-7000, ext. 857).

Programming Manager

Responsibilities of the Programming Manager are to plan and direct the activities of the Operating Systems Programming Division; to make recommendations in the selection, evaluation, installation and maintenance of operating systems, utilities and communications equipment; to consult with users regarding the hardware and software requirements of projects; and to coordinate the installation of new equipment.

Systems Programmer

Responsibilities of a Systems Programmer include the following: to install new versions of the operating systems; to design, code and install changes to new and/or existing versions of the operating systems; to consult with users and staff to solve problems and answer questions when necessary; and to plan, develop and present seminars and demonstrations pertinent to technical aspects of systems usage.

Junior Computer Operator

The Junior Computer Operator performs the following technical duties under close supervision: operate computer systems and related equipment such as console, line printers, card reader and magnetic tape drives; dispatch input and output to proper areas; answer routine user questions, and inform customer engineers of equipment problems.

6.0 USED CDC PERIPHERAL EQUIPMENT FOR SALE

ATTENTION BARGAIN HUNTERS!! The Lehigh University Computing Center has decided to clean house, and is offering the following CDC peripheral equipment at bargain prices. If any readers of USER are interested in acquiring any or all of these items, please contact John H. Morrison, Operations Manager, Room 154 Packard Lab #19, Lehigh University, Bethlehem, PA 18015, 215-691-7000, extension 756.

4	CDC 604	7 track tape drives
1	CDC 3228	7 track tape controller and cabinet
2	CDC 6681	data channel converters
1	CDC 6638	disk controller cabinet
11	CDC 881	single density disk packs for 844-2 and 844-21 disk drives

7.0 AN OUTSIDER'S VIEW OF COMPUTER GAME PLAYING

The following article from the February 1979 issue of Computer News published by the University of Delaware may be of interest to Lehigh users:

Recent news articles (such as one by Associated Press, December 6, 1978) state that universities are training "computer criminals" because the use of computers for games and so forth is inducive to such behavior. Perhaps the issue is more subtle. Is it wrong to play games or to use the computers for personal projects? Or should a computing center absolutely forbid such use of the computers?

To answer the question, consider what I believe to be an analogous situation. A student goes to the library to explore topics not within his major area of study or directly related to formal courses in which he is enrolled. For example, a chemistry major goes to the library to gather books on economics or anthropology, or perhaps he chooses a good novel. Most people would agree this is a healthy situation and part of the educational process. I consider playing a computer game, investigating a new program in the program library, or trying a new approach to a particular problem using the computer is much like the library visit above. If our goal is for students to use computing resources responsibly in support of their discipline, we must first get them excited. This is true both in the class and at the computer terminal.

There are, of course, bounds to this usage. There is never a valid reason to use a computer to harass others, to prevent someone else from using the terminal to complete course work, or to look over the computer files of another student. Each student has the right to privacy in his work. Even the fact that the file may be unlocked is no more a license to violate it than for someone to invade another person's desk simply because the door was left open. Neither is it wise to turn a student loose to find his way around; a proper introduction in class is absolutely necessary.

But once introduced...I've seen students bring their dates to Smith Hall on Saturday evenings to see their newest program, faculty bring their children on weekends, and community groups benefit from first seeing a demonstration and then receiving an explanation of how it works and where they might go from there.

Therefore, if some people say what starts as a game can get malicious and develop a "criminal with a computer," I conclude that what may start as a "game" can develop into a lasting interest in work that could benefit society! It's all in your point of view.

John Falcone, Director

Any comments should be sent to the editor of USER, Room 117 Packard Lab.

8.0 FROM THE LIBRARIAN

8.1 New Programs - CDC 6400

8.1.1 *FTN4 - Version 4.6 Of CDC's Fortran Compiler

FTN4 is now available on the CDC 6400. Its advantages include improved optimization, new features and use of the Cyber Record Manager (with its various record type and block type capabilities). Its disadvantages include slower compilation speed, and about 10000 (octal) words extra execution field length due to the use of Record Manager. The use of FTN4 is recommended for programs which can utilize the improved features and faster execution speed. To access FTN4, add a NEW(FTN) control card before the FTN. control card. For example, a simple compilation and execution job record would be:

```
jobcard
NEW(FTN)
FTN.
LGO.
7/8/9
```

8.1.2 *BMDP - Biomed Statistics Programs - P Series

Finally, the P series of the BMD statistics programs from the University of California (converted for CDC usage by the University of Minnesota) have been installed. This is the 1977 version documented in the black-covered BMDP manual. The BMDP1L, BMDPAR and BMDP3V programs are not available.

The BMDP programs provide a wide variety of analytic capabilities that range from plots and simple data description to advanced statistical techniques. Features include these: screening, plotting, regression, analysis of variance and multivariate analysis.

As with any newly installed software package, users should check results carefully. It is possible that "bugs" (programming errors) still remain in the package.

The BMDP manual is available for reference at the Inquiry Desk, and for sale at the University Bookstore. A document containing usage notes and installation differences is available from the Librarian.

8.2 New Programs - DEC 20

8.2.1 *LISP - Standard LISP Interpreter (R00003)

A version of LISP, a list processing language, is now available on the DEC 20. A copy of its documentation is at the Inquiry Desk.

8.2.2 *REDUCE - Algebraic Programming System (R00004)

REDUCE is a LISP-based algebraic manipulation program. It has the following capabilities:

Symbolic manipulation
Substitutions and pattern matching
Tensor operations

Documentation is available at the Inquiry Desk.

8.2.3 *DERIV - Organic Chemistry Lab Aid (T20001)

The program, DERIV, useful in chemical compound classification, provides the user with the following items:

Possible classes of compounds based on the user defined solubility class
Classification tests needed to determine the class in which the unknown compound falls
Derivative procedures needed to determine the identity of the unknown compound

Documentation is available at the Inquiry Desk.

8.3 New Programs - PDP 11/34

8.3.1 *CAI - CAI Programs For Biology -

The following programs obtained from the University of California teach the basic skills needed to conduct independent investigation in introductory biology laboratories. These programs are available on the PDP 11/34 via the EXEC command:

BREED (T90002)
Simulates genetic laboratory experiments
CELLS (T90003)
Simulates cell cycle calculations
CMPUTE (T90004)
Computation aids in genetics and ecology
CONWAY (T90005)
An introduction to the scientific method
ENZYME (T90006)
Simulates experiments in enzyme kinetics
GENIE (T90007)
Simulates laboratory in Mendelian genetics
SEQUEN (T90008)
Exercise in protein sequencing

Documentation for these programs is available at the Inquiry Desk.

9.0 NEW PUBLICATIONS

9.1 *LOGIN Instructions

A new handout has been prepared which contains instructions on how to LOGIN and LOGOUT on each of the three computing systems at Lehigh. It also contains instructions on common operations such as deleting a character or a line, and terminating the execution of a program. Copies of this handout are available free in the User Servces Office, Room 117 Packard Lab.

9.2 *CDC 6400 Technical Bulletin 14

Technical Bulletin 14, CDC 6400 Seven to Nine Track Magnetic Tape Conversion Guide, is now available from User Services. In addition to explaining differences between 7-track and 9-track tape processing, the Technical Bulletin also contains sample jobs for 7-track to 9-track conversions.

9.3 *DECSYSTEM-20 Implementation Bulletin 4

Implementation Bulletin 4 has been prepared for the DECSYSTEM-20 dealing with the subject of user access to the magnetic tape drive. The commands needed during an interactive session, a sample .CTL file for deferred processing, and policies regarding magnetic tape usage on the DEC 20 are included in this bulletin. Copies are available free in the User Services' office.

10.0 POLICIES AND PROCEDURES

The following are policies of which users should be aware.

*Magnetic Tape Processing - CDC 6400 - Magnetic tape users on the CDC 6400 must indicate on the yellow special submission card which accompanies the batch job whether the tapes utilized are 7- or 9-track tapes. The new special submission cards are designed to contain this information. It must be added to any of the older cards which users may still have in their possession. Failure to indicate whether it is 7- or 9-track tape will result in the operator's dropping the job.

*Password PASSWORD - In order to have nearly uniform access on all three computing systems the password PASSWORD on the CDC 6400 will be dropped on June 1, 1979. Identical access capabilities have been and will continue to be available from the password LEHIGH.

*New Central Memory Limits for Certain Authorizations - With the installation of the additional central memory on the CDC 6400, it is now possible for all authorizations, except instructional authorizations, to request a maximum central memory limit of 140000 (octal) words during non-prime processing periods, and 160000 (octal) during off-hours processing periods. Please note, however, that University funded research and thesis authorizations are limited to 30 system seconds during non-prime hours and 500 system seconds during off-hours at these maximum central memory limits. Users desiring these new limits should submit a Computer Authorization Request form (form #1) to User Services.

*Departmental Approvals - In a February 2, 1979 memorandum from Dr. B. L. Wechsler, Computing Center Director, it was noted that department chairmen must approve all requests for dollars and end-date changes for University funded research and thesis authorizations. This policy will be enforced starting May 1, 1979.

*Magnetic Tape Processing - DEC 20 - Since only one magnetic tape drive is available on the DEC 20, users will be restricted to 30 minutes of processing for each TMOUNT command if other users are waiting for access to the tape drive. The interactive user will be warned when the 30 minute limit has been reached, and approximately 5 minutes later will be logged out if the drive is not released. The operators will be permitted to make exceptions to this rule only when hardware problems occur or when an operator error is made.

Only the DEC 20 directory name associated with the tape will be permitted access to the tape, without prior arrangement with the operations staff.

USER SERVICES EXTERNAL REPORT

MAILING LIST

____ADD my name to the mailing list

____DELETE my name (include mailing label or complete address)

____CHANGE my address (list both old and new addresses and include Zip Code)

CAMPUS

NAME:_____

DEPT.:_____

BLDG.:_____ ROOM:_____

OFF-CAMPUS

NAME:_____

ADDRESS:_____

_____

_____ZIP CODE:_____

RETURN TO: Lehigh University
Computing Center
RM. 117 Packard Lab, Bldg. 19
Bethlehem, PA 18015

11.0 USAGE STATISTICS

11.1 CDC 6400

	11/78	12/78	1/79	2/79	3/79
Batch Jobs Processed	54,995	35,415	22,578	53,088	52,975
Central Site Submissions	27,034	21,008	12,872	26,727	30,393
INTERCOM Terminal Sessions	6,932	6,696	6,557	7,063	8,284
INTERCOM Connect Hours	2,678	2,738	2,892	2,881	3,478
CP Hours - Batch	193.7	190.7	209.9	213.0	280.4
- INTERCOM	24.0	23.3	20.2	19.7	23.1

11.2 DECSYSTEM-20

	11/78	12/78	1/79	2/79	3/79
Terminal Sessions	8,781	5,981	5,566	9,883	11,195
Connect Hours	4,193	3,178	2,251	4,846	5,929
CP Hours - All Jobs	169.5	139.5	123.7	208.0	180.9

11.3 PDP 11/34

	11/78	12/78	1/79	2/79	3/79
Connect Hours	2,611	1,725	2,231	2,742	2,348
CP Hours	62.9	47.9	60.4	103.2	96.4

12.0 OPERATIONAL STATISTICS

12.1 CDC 6400

	11/78	12/78	1/79	2/79	3/79
Time System Available During Scheduled Hours (Percentage)					
Batch	99.9	99.9	99.7	97.5	99.9
INTERCOM	95.7	99.8	99.7	99.2	99.9
Mean-Time Between Interruptions (Hours)					
Batch	197.9	311.9	349.9	176.9	418.8
INTERCOM	75.8	155.7	38.9	51.2	104.7

12.2 DECSYSTEM-20

	11/78	12/78	1/79	2/79	3/79
Time System Available During Scheduled Hours (Percentage)	99.8	99.9	99.9	99.9	99.7
Mean-Time Between Interruptions (Hours)	196.5	320.0	166.4	176.3	99.7

12.3 PDP 11/34

	11/78	12/78	1/79	2/79	3/79
Time System Available During Scheduled Hours (Percentage)	100.0	99.9	100.0	99.6	100.0
Mean-Time Between Interruptions (Hours)	394.5	318.6	315.5	175.4	399.1